



Group Technical Discussions in Collaboration & Knowledge Management (CKM)



➤ Objectives

- Engage all workshop participants in open, detailed discussions of key technical issues in CKM
- Identify new approaches to empirically address technical issues (e.g., new communication methods to measure shared understanding)
- [Gain group input and agreement on a shared mental model of collaboration and its components (draft)]
- Gain group input and agreement on a Research Roadmap that:
 - ❖ Locates current projects with respect to our mental model of collaboration
 - ❖ Identifies the current, important research gaps
 - ❖ Identifies the most important collaboration tools needed
- Exchange project level technical detail to encourage joint efforts and leveraging among projects toward development of end products or usable tools

➤ End Products

- List of research gaps, new approaches, and collaboration



New Day 3 Agenda

Morning

- Review application / functional specifications of CKM
- Discuss parameters of task / role, setting and team factors
 - Prioritize top 6?
- 3 Breakout Groups work selected questions
 - Report out to large group

Afternoon

- Review the question of models, frameworks and / conceptual modules
- Propose various frameworks, modules
- Identify, discuss open questions, fuzzy areas, various gaps, open questions



THE REQUIREMENT

Requirement for Collaboration Technology

- Increasing problem complexity- team effort needed
- IT/Communications technology widening accessibility of contributors
- Problems addressed at international level - coalitions required
- Defense Transformation to agile and coalition operations

Some Examples

- Information overload conditions
- International humanitarian relief effort
- Multinational response team in Afghanistan
- International automobile design team
- Multi-government agency sniper





Problem Characteristics

General

- **Distributed participants**
- **Multidisciplinary contributors**
- **Technology supported**
- **Changing participants**
- **Complex, Data-Rich Environment**
- **Distributed and unshared knowledge**

Military

- **Operations with Joint, Coalition, Non-Government and Volunteer Organizations**
- **Asynchronous and Distributed Command Level Decision Making**
- **Asymmetric Warfare**
- **Dealing with Open-Source (Uncertain, Conflicting, Partial, Non-Official) Data**
- **More Focus on Humanitarian Relief, Disaster Aid and Politically-charged Operations**
- **Rapidly Changing Team Members and Associated Organizational Structures**
- **Culturally Diverse Partners**



Parameters of Setting, Team and Task



- Goal: Create a manageable list of parameters that define broad, important dimensions of differences across CKM research and applications
- Use this list to categorize the current research projects
- Perhaps use indicated clusters of researchers as initial small work groups?

Process:

- Brainstorm Lists
- Cluster items
- Prioritize top 6 to 8



Possible Parameters of Setting, Team & Task



- Task & Roles:
 - Nature of interdependence: pooled, sequential, reciprocal
 - Role specialization / homogeneity
 - Behavioral discretion / proceduralization
 - Pace of work / time pressure
 - Longevity of task episodes
 - Dynamicness of task
 - Complexity of task
 - Risk consequences
 - Synchronous vs Asynchronous
 - ?



Possible Parameters of Setting, Team & Task



- Setting:
 - Mediation: F2f, multimedia, monomedia
 - ❖ Differential effects of media? Text-based messaging, e-mail, computer-conferencing, Ewall, teleconference, videoconference, videowall, graphical objects, visual representations, maps, etc...
 - Different tasks routed to assigned media?
 - ❖ Team members experience, competence with tool / media
 - Planned vs. spontaneous need for teamwork
 - Organizational decision-making / role authority rules
 - ?



Possible Parameters of Setting, Team & Task



- Team:
 - History / Member familiarity
 - ❖ Roles specified but persons rotating frequently—no familiarity
 - ❖ Roles specified but persons rotate frequently—but know some or all of other members from past rotations, other roles: Members recognize at least some of each other
 - ❖ Team has enough history among members to be developing through stages
 - ❖ Team member experience / familiarity with this team task
 - Degree of knowledge distribution among members
 - Distances among members:
 - ❖ Time zones
 - ❖ Geographic distance
 - ❖ Cultural distance among members (occupational, organizational, national)
 - ?



Decision Process

- Brainstorm other items
- Cluster items—which can be combined under one heading?
- Prioritize top 6 to 8 dimensions
 - Discuss / debate
 - Ordinal ranking: allocate 10 points across all items
 - Validate outcome – categorize current research projects using the dimensions



Breakout Groups (Day 3, AM)



3 Breakout Groups by

- Occupational background / heritage:
 - Cognitive sciences
 - Team / organizational dynamics
 - Computer / media / communication sciences
 - Military sciences
- Nature of task / role, team and setting studied

Discussion Format

- Open discussion of the 3 key questions, in sequence below, moderated by facilitator
- Group decisions captured on laptop by assigned co-moderator of breakout group—agreed upon as much as possible in time allowed (note degree of relative agreement of difference)
- Facilitator presents Group's input on 3 key questions (20 minutes)



Breakout Groups by Thrust Area (Day 3, AM)



Key Questions

1. Identify additional research gaps that need to be addressed for effective collaboration.
 - In your own research-what would you like help with?
 - In the field in general
2. Identify and discuss new approaches on how to empirically answer these research gaps
 - E.g., gap = metrics to measure team shared understanding; approach = new communication protocol analysis techniques).
 - Be sure to pause and brainstorm ideas in response to requests for help (above)
3. Identify and discuss where current CKM projects could work jointly. Be as specific as possible.
 - What other CKM projects are you interested in following-up with, learning more about, exploring possible areas of collaboration?
 - What about NASA or DARPA?
4. Identify top priority collaboration tools needed in each segment of 5 step collaboration process & related applications you might develop from your current work



Afternoon

- Review the question of models, frameworks and / conceptual modules
- React to, revise, re-write the drafted integrative “Model”
- Present back a revised draft “Model” of team cognition and collaboration
- Large Group: Identify, discuss open questions, fuzzy areas, various gaps, open questions
- Closing Remarks



Models & Modules

- Large group review of selected models
 - Characterization of conceptual modules vs. models
- Small groups (Mixed)
 - React to models and either draft / revise –or– Draft key conceptual modules
 - Map existing research projects to models or modules
 - Present to large group
- Remaining open questions, fuzzy areas, various gaps, open questions
- Reflection on workshop process and output
 - What does it teach us about CKM?